progeny™
A Midmark Company

VetVision DC X-Ray System

User Manual

CE

00-02-1601 Rev. **G**

ECN: P3250

Attention:

The equipment must only be installed and operated in accordance with the safety procedures and operating instructions given in this manual and in the User Manual for the purposes and applications for which it was designed. Modifications and/or additions to the equipment may only be carried out by Progeny – A Midmark Company or by third parties expressly authorized to do so. Such changes must comply with legal requirements as well as with the generally accepted technical rules. It is the responsibility of the user to ensure that existing legal regulations regarding installation of the equipment with respect to the building are observed.

X-RAY PROTECTION:

X-ray equipment may cause injury if used improperly.

The instructions contained in this manual must be read and followed when operating the Vet Vision. Your Dental dealer will assist you in placing the Vet Vision in operation.

The Vet Vision X-Ray System provides a high degree of protection from unnecessary x-radiation. However, no practical design can provide complete protection nor prevent operators from exposing themselves or others to unnecessary radiation.

VetVision DC Dental X-Ray System

User Manual

Progeny – A Midmark Company

675 Heathrow Drive
Lincolnshire, IL 60069
Phone: +1-847-415-9800 Toll Free: (888) 924-3800 Fax: (847) 415-9810
www.progenyvetimaging.com

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General Information

VetVision DC Dental X-ray (Wall-mounted Model)

Figure 1 - Wall-mounted VetVision DC, Single Stud Mount

Figure 2 - Wall-mounted VetVision DC, Double Stud Mount

VetVision DC Mobile System

Compliance with Applicable Standards

Radiation Protection	The certified components of the VetVision DC X-Ray System comply with Radiation Performance Standards 21 CFR, Subchapter J, at the time of manufacture. The certified components of the VetVision DC X-Ray System comply with IEC 60601-1-3 Radiation protection/x-ray equipment.
UL 2601-1 File Number: E181750	Classified by Underwriters Laboratories Inc. with respect to electrical shock, fire and mechanical hazards only in accordance with UL 2601-1, and CAN/CSA C22.2 NO, 601.1-M90, and to the following particular standards, IEC60601-2-7, IEC60601-2-28.
EMI/EMC	IEC60601-1-2

Certified Components

	Component	Reference Number
System	Tubehead	30-A1027
	Control Unit	30-A1041
	Cone 8 in.	30-A2016

EC Declaration of Conformity

Name and Description of Product	**Progeny VetVision DC**
	Catalog Model: P7017V, 76 inch reach 30-A1041, Control 30-A1028, Articulated Arm
	Catalog Model: P7016V, 66 inch reach 30-A1041, Control 30-A1028, Articulated Arm
	Catalog Model: P7015V, 56 inch reach 30-A1041, Control 30-A1028, Articulated Arm
	Catalog Model: P7017VM, Mobile 30-A1032, Control
	Class: IIb
Reference Numbers to which Conformity is Declared	The following regulatory documents apply: UL 2601-1 IEC 60601-1-2 IEC 60601-1-3 IEC 60601-2-7 IEC 60601-2-28 IEC 60601-2-32
Contact	Technical Support techsupport@progenydental.com

Authorized Representatives

Safety

North America	Midmark Corporation 675 Heathrow Dr. Lincolnshire, IL 60089 Phone: 888-924-3800 Fax: 847-415-9810
Europe	CE Partner 4U Esdoornlaah 13 3951DB Maarn Netherlands Phone: +31.343.442.524 Fax: +31.343.442.162

Radiation Safety	Only qualified and authorized personnel may operate this equipment observing all laws and regulations concerning radiation protection. • The operator at all times must remain 6ft. (2m) from the

Electrical Safety

- Only qualified and authorized service personnel should remove cover s on the equipment.
- This eq

Explosion Safety	This equipment must not be used in the presence of flammable or potentially explosive gases or vapors, which could ignite, causing personal injury and/or damage to the equipment. If such disinfectants are used, the vapor must be allowed to disperse before using the equipment.

Explanation of Symbols on Technical Labels

	Type B: Prot
	Consult writt
	ATTENTI
	WARNING
	X-RAY
L	Mains HO
N	Mains NF
	Earth Gro

Obtaining Technical Suppor

t

Contact

Progeny – A Midmark Company
675 Heathrow Drive
Lincolnshire, IL 60069
Phone: +1-847-415-9800
Toll Free:888-924-3800
Fax: +1-

847-415-9810
techsupport@progenydental.com

Serial Number

Location	SN numbers are located on the tube head or on the base of mobile systems.

Operating the VetVision DC Dental X-Ray System

Using the Operator Panel

ICONS

1. Large, LED screen displays technique settings. It also displays menu selections when the system is in menu mode.
2. Up and Down arrows are used to change kV, mA and time settings.
3. Tooth Icon. Pressing this button allows the user to select Upper or Lower Canine, Incisors, Premolars and Molars.
4. Receptor Icon. Choices are: Digital, D Speed film, E/F Speed Film. If using phosphor plates, select E/F Speed Film Setting.
5. Patient Size Icon. Press to select Large or Small
6. Ready Indicator. Circle lights up to indicate that the system is ready to produce x-ray.
7. Right Arrow Button. Use this button to move between kV, mA and time selections. This button is also used as an “Enter” key when the system is in menu mode.
8. Radiation Indicator. This symbol lights up when an x-ray is produced.
9. Exposure Button. Pressing this button will produce an x-ray exposure.

Using the Operator Panel

Power On Settings

When the VetVision DC is powered on, the Operator Panel will display the selections that were used when the system was last powered off.

Display

The Operator Panel displays the exposure settings (kV, mA, and exposure time) for the currently selected tooth, image receptor type, and patient size.

Selecting Techniques

To select the desired technique for a procedure:

1. Press the Tooth Selection Icon until the correct tooth anatomy is lit.
2. Press the Image Receptor Icon to select the type of receptor you will be using.
3. Press the Patient Size Icon to choose large or small.

The appropriate kV, mA and time settings will now appear in the display and the system is ready to take an x-ray.

Technique Tables

For a table of the factory-programmed exposure settings, refer to the Pre-programmed Exposure Settings tables on page 11.

Adjusting Exposure Settings

Preset exposure settings can be adjusted prior to making an exposure. Use the right arrow to select the exposure setting to adjust. Then use the up and down arrow buttons to adjust the value.

- To save new presets, refer to System Configuration mode on page 16.

Exposure Button and Ready Indicator

The Exposure button is used to initiate an x-ray exposure. For a complete exposure, the button must be pressed and held until the Radiation Indicator no longer illuminates and the audible signal is no longer heard. Releasing the Exposure button immediately terminates the x-ray exposure.

CAUTION!
Releasing the Exposure button prior to the completion of the x-ray exposure will result in an incomplete exposure of the image. This may require the operator to re-take the radiograph. When a premature release of the Exposure button occurs, the system will notify the operator by blinking momentarily, then it will return to operating mode.

Ready Indicator

The Ready Indicator lights up when the system is ready to make an exposure Immediately after an exposure, the Ready Indicator flashes until the x-ray tube cools down sufficiently to make the next exposure. When the Ready Indicator is flashing,no exposure can be made.

Radiation Indicators

The VetVision DC has a visible and an audible Radiation Indicator. When an exposure is in progress, the Radiation Indicator on the Operator Panel is illuminated and an audible tone is heard. The exposure is complete when the Radiation Indicator light is extinguished and the audible tone is no longer heard.

Taking an X-Ray Using Preset Techniques

1. The power switch is located at the upper right of the Control Unit or on the control unit on the footed stand of the mobile system. Press button to the "On" position. The Ready Indicator on the front of the Operator Panel will light.

2. Verify that the unit is set for the Tooth to be imaged. The icon for the currently selected Tooth is illuminated. To change, press the Tooth Selection button until the correct tooth type is selected.

3. Verify that the unit is set for the correct Image Receptor Type. The icon for the currently selected Image Receptor Type will be illuminated. To change the Image Receptor type, press the Image Receptor button until the correct Image Receptor Type is selected.

4. Verify that the system is set for the appropriate Patient Size. The icon for the currently selected Patient Size will be illuminated. To change Patient Size, press the Patient Type button to select Large or Small.

5. Make sure the patient is properly immobilized and place the tube head 2-3 inches from the patient and directly centered on the receptor.

6. Press and hold the Exposure button until the audible signal is no longer heard and the Radiation Indicator is no longer illuminated. Releasing the Exposure button or coil-cord hand switch at any time will immediately terminate the exposure.
   Note: When using the coil-cord hand switch, it is recommended that the operator exit the operatory if possible.
   Note: In order to comply with regulations and good safety practices, the technique factors must be visible to the operator from the remote location.

7. Return the Tubehead to the storage position.
   Note: Be careful not to strike the Tubehead on the wall when returning it to the storage position.

Changing kV, mA or time

If it becomes necessary to increase or decrease the kV, mA, or time from the preset values, follow these steps:

1. Press the Enter button ▶ to highlight the current kV, mA or time setting.
2. Use the up and down buttons to increase or decrease the value.
3. Press the Exposure button.
4. After the image(s) has been captured, press any of the tooth, receptor type or patient size buttons to return the display to its preset values.

Note: When exposure settings are being adjusted, the Tooth Selection, Image Receptor Type, and Patient Size buttons are not illuminated.

Pre-programmed Exposure Times

The tables below show the factory default exposure settings for each combination of Tooth, Image Receptor Type, and Patient Size on the Operator Panel. These exposure settings can be modified using the System Configuration mode. See the System Configuration section for details.

8" Cone		Progeny		Schick		Dexis		Kodak		Sirona		PSP		D Speed		E/F Speed	
		Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small
Upper Canine	kV	65	65	65	65	60	60	65	65	65	65	65	65	65	65	65	65
	mA	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Sec	0.100	0.080	0.080	0.050	0.125	0.080	0.100	0.064	0.080	0.050	0.125	0.080	0.250	0.160	0.125	0.080
Lower Canine	kV	65	65	65	65	60	60	65	65	65	65	65	65	65	65	65	65
	mA	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Sec	0.080	0.064	0.064	0.040	0.100	0.080	0.080	0.064	0.064	0.040	0.100	0.080	0.200	0.160	0.100	0.080
Incisors	kV	65	65	65	65	60	60	65	65	65	65	65	65	65	65	65	65
	mA	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Sec	0.100	0.080	0.064	0.040	0.100	0.080	0.080	0.064	0.064	0.040	0.100	0.080	0.200	0.160	0.100	0.080
Premolars	kV	65	65	65	65	60	60	65	65	65	65	65	65	65	65	65	65
	mA	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Sec	0.100	0.080	0.064	0.040	0.100	0.080	0.080	0.064	0.064	0.040	0.100	0.080	0.200	0.160	0.100	0.080
Molars	kV	65	65	65	65	60	60	65	65	65	65	65	65	65	65	65	65
	mA	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Sec	0.125	0.080	0.080	0.050	0.125	0.080	0.100	0.064	0.080	0.050	0.125	0.080	0.250	0.160	0.125	0.080

12" Cone		Progeny		Schick		Dexis		Kodak		Sirona		PSP		D Speed		E/F Speed	
		Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small	Large	Small
Upper Canine	kV	65	65	65	65	60	60	65	65	65	65	65	65	65	65	65	65
	mA	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Sec	0.200	0.160	0.160	0.100	0.250	0.160	0.200	0.125	0.160	0.100	0.250	0.160	0.500	0.320	0.250	0.160
Lower Canine	kV	65	65	65	65	60	60	65	65	65	65	65	65	65	65	65	65
	mA	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Sec	0.160	0.125	0.125	0.080	0.200	0.160	0.160	0.125	0.125	0.080	0.200	0.160	0.400	0.320	0.200	0.160
Incisors	kV	65	65	65	65	60	60	65	65	65	65	65	65	65	65	65	65
	mA	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Sec	0.200	0.160	0.125	0.080	0.200	0.160	0.160	0.125	0.125	0.080	0.200	0.160	0.400	0.320	0.200	0.160
Premolars	kV	65	65	65	65	60	60	65	65	65	65	65	65	65	65	65	65
	mA	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Sec	0.200	0.160	0.125	0.080	0.200	0.160	0.160	0.125	0.125	0.080	0.200	0.160	0.400	0.320	0.200	0.160
Molars	kV	65	65	65	65	60	60	65	65	65	65	65	65	65	65	65	65
	mA	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	Sec	0.250	0.160	0.160	0.100	0.250	0.160	0.200	0.125	0.160	0.100	0.250	0.160	0.500	0.320	0.250	0.160

* Large = over 40 lbs. *Small = under 40 lbs.

Baseline Technique Charts – Canine Baseline Technique Charts

D speed film	Small Dog			Medium Dog			Large Dog		
	kV	mA	Secs	kV	mA	Secs	kV	mA	Secs
Maxillary incisors				60	7	0.25			
Maxillary canine				60	7	0.32			
Maxillary anterior premolars				60	7	0.32			
Maxillary PM4				60	7	0.32			
Maxillary PM4 caudal view				60	7	0.40			
Maxillary M1 M2				60	7	0.40			
Mandibular incisors				60	7	0.25			
Mandibular canine				60	7	0.32			
Mandibular anterior premolars (lateral oblique view)				60	7	0.25			
Mandibular posterior pm & molars				60	7	0.25			
Digital	**Small Dog**			**Medium Dog**			**Large Dog**		
	kV	mA	Secs.	kV	mA	Secs.	kV	mA	Secs.
Maxillary incisors				60	6	0.08			
Maxillary canine				60	6	0.08			
Maxillary anterior premolars				60	6	0.08			
Maxillary PM4				60	6	0.08			
Maxillary PM4 caudal view				60	6	0.10			
Maxillary M1 M2				60	6	0.10			
Mandibular incisors				70	6	0.04			
Mandibular canine				60/70	7/6	0.08 /0.05			
Mandibular anterior premolars (lateral oblique view)				60	6	0.064			
Mandibular posterior pm & molars				65	6	0.032			

Feline Technique Settings

D speed film			
	kV	mA	Secs
Maxillary incisors	60	7	0.1
Maxillary canine	60	7	0.1
Maxillary premolars M1 intraoral	60	7	0.1
Maxillary premolars M1 extraoral	60	7	0.125
Mandibular incisors and canine	60	7	0.1
Mandibular PM3 lateral oblique	60	7	0.16
Mandibular PM3 M1	60	7	0.1
Digital			
	kV	mA	Secs.
Maxillary incisors	60	7	0.032
Maxillary canine	60	7	0.032
Maxillary premolars M1 intraoral	60	7	0.04
Maxillary premolars M1 extraoral	60	7	0.05
Mandibular incisors and canine	60	7	0.032
Mandibular PM3 lateral oblique	65	7	0.025
Mandibular PM3 M1	65	7	0.025

Record Your Exposure Settings

If the pre-programmed exposure settings do not produce the density desired, adjust the settings using System Configuration mode. Record your settings in the table below.

Canine

8 inch (20 cm) Cone		Digital Receptor		D-speed Film		E/F Speed Film	
Tooth Selection	Setting	Large*	Small*	Large	Small	Large	Small
Upper Canine	kV						
	mA						
	seconds						
Lower Canine	kV						
	mA						
	seconds						
Incisors (Upper and Lower)	kV						
	mA						
	seconds						
Lower Molar and Premolars	kV						
	mA						
	seconds						
Upper Molar and Premolars	kV						
	mA						
	seconds						

* Large = more than 30 lbs.. * Small = 30 lbs. and under

Record Your Exposure Settings

If the pre-programmed exposure settings do not produce the density desired, adjust the settings using System Configuration mode. Record your settings in the table below.

Feline

8 inch (20 cm) Cone		Digital Receptor		D-speed Film		E/F Speed Film	
Tooth Selection	Setting	Large*	Small*	Large	Small	Large	Small
Upper Canine	kV						
	mA						
	seconds						
Lower Canine	kV						
	mA						
	seconds						
Incisors (Upper and Lower)	kV						
	mA						
	seconds						
Lower Molar and Premolars	kV						
	mA						
	seconds						
Upper Molar and Premolars	kV						
	mA						
	seconds						

*Use small settings for feline dentistry

System Configuration

System Configuration Mode

About System Configuration Mode

The VetVision DC Dental X-Ray System has a software-driven system configuration mode. When the VetVision DC is in system configuration mode, you can perform the following procedures:

- Adjusting the Display
- Changing Pre-programmed Exposure Settings
- Changing the Cone Size
- Showing Current System Configuration
- Displaying Diagnostic Data

Using System Configuration Mode

1. To enter system configuration mode, depress the Tooth Selection and Patient Size Selection buttons on the Operator Panel simultaneously for 5 seconds. The display shows the Main System Configuration menu, as shown in Figure 1, and the Ready Indicator blinks.
2. To select menu items while in system configuration mode, use the up and down arrows to highlight a menu option. Then use the right arrow button as an Enter button to select the highlighted option. When changing presets, the right arrow button is also used to select the technique factor.
3. After selecting a menu option, use the up and down arrows to increase or decrease values.

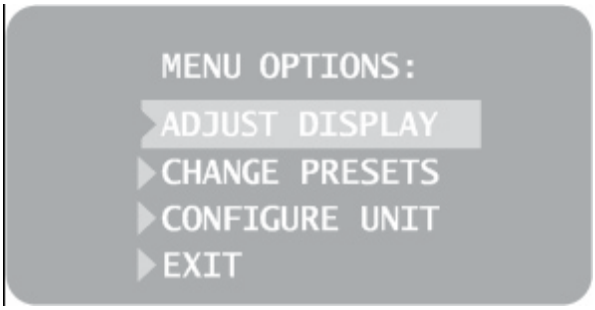


Figure 1
Main System Configuration Menu

Adjusting the Display

The VetVision DC Dental X-Ray System allows the operator to adjust the display image.

1. From the system configuration main menu, shown in Figure 1, select ADJUST DISPLAY. You will see the Display Options menu shown in Figure 2.
2. Selecting EXIT returns the display to the Main System Configuration menu shown in Figure 1.

Adjusting Contrast

1. Select ADJUST CONTRAST from the menu. You will see the Progeny logo.
2. Use the up and down arrows to increase or decrease the contrast between the menu text and the display background.
3. Press the right arrow to save your settings.

Reversing the Image

1. Select REVERSE IMAGE from the menu. The text and display background colors will be swapped.
2. Press the right arrow to save your settings.

Figure 2
Display Options Menu

Changing Pre-programmed Exposure Settings

The VetVision DC Dental X-Ray System allows the operator to increase or decrease image density for all presets for a receptor simultaneously or to change each of the technique factors for a preset individually. You can also restore factory default settings. For charts of the factory default settings, refer to Factory Default Exposure Settings later in this manual.
Note: Before changing presets, use the table on page 14 to write down the presets you are programming.

Displaying the Preset Options Menu

1. From the Main System Configuration menu, shown in Figure 1, select CHANGE PRESETS. You will see the Preset Options menu shown in Figure 3.
2. Selecting EXIT returns the display to the Main System Configuration menu shown in Figure 1.

Figure 3
Preset Options Menu

Changing All Receptor Settings Globally

1. Select ALTER DENSITIES from the Preset Options menu. The first Image Receptor Type illuminates. The display shows the selected Image Receptor Type and current density.
2. Using the Image Receptor Type button, select the image receptor to adjust.
3. Use the up and down arrow buttons to specify a percentage by which densities will be increased or decreased for the selected receptor. Densities can be increased or decreased according to values provided on the display.
4. Press Enter to save your settings.

Preprogramming to Digital Sensors

1. Energize the system.
2. Press the Tooth Selection and Patient Size Selection buttons for five full seconds.
3. Select CHANGE PRESETS from the Menu Options screen.
4. Select SELECT RECEPTOR from the Preset Options menu (Figure 3).
5. Press the up or down button to highlight the sensor or phosphor plate to change, and press Enter.
6. Select YES or NO on the Verification screen.
7. Exit the Preset Options menu.
8. Exit the Menu Options menu. A message of “Saving Settings” will display briefly, and then the system will return to the normal operational mode.

Note: When you are working in service mode, the green light next to the exposure button will blink.

Changing Presets Individually

1. Select EDIT PRESETS from the Preset Options menu. The display notifies you that you are entering Edit Preset Mode, and Tooth Size, Image Receptor Type, and Patient Size are illuminated.
2. Use the Tooth Selection, Image Receptor Type, and Patient Size Selection buttons to select the preset to change. The display shows the current values for the preset.
3. Use the right arrow button to display the technique factor to change.
4. Use the up and down arrow buttons to set the value for the selected technique factor and preset.
5. Repeat steps 2-4 to change additional presets.
6. When you have completed all changes, press the Tooth Selection and Patient Size Selection buttons simultaneously for 5 seconds to record the change.

Recall Presets

1. To return all presets to factory defaults, select RECALL PRESETS from the Preset Options menu. The menu will ask you to confirm your choice.
2. Select YES using the up arrow button and return all presets to factory default settings. Selecting YES will erase any custom presets that have been set up.
3. Select NO using the down arrow button and retain current presets. To retain the presets, select YES.

Showing Current System Configuration

The VetVision DC Dental X-Ray System displays the current system configuration. This display is informational only.

1. From the Main System Configuration menu, shown in Figure 1, select CONFIGURE UNIT. You will see the Configuration menu shown in Figure 4.
2. Select SHOW CONFIG. The display will show:
   - Current software version
   - Cone size
   - Diagnostic mode on or off
3. Press any button on the Operator Panel to return to the Configuration menu.

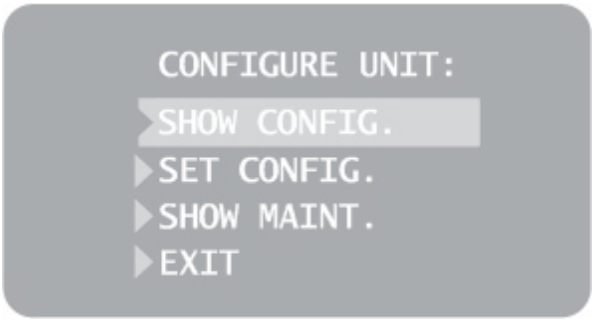


Figure 4
Configuration Menu

Diagnostic Mode

About Diagnostic Mode

The VetVision DC Dental X-Ray System has a diagnostic mode in which you can display a summary of maintenance data or display feedback values after each exposure.

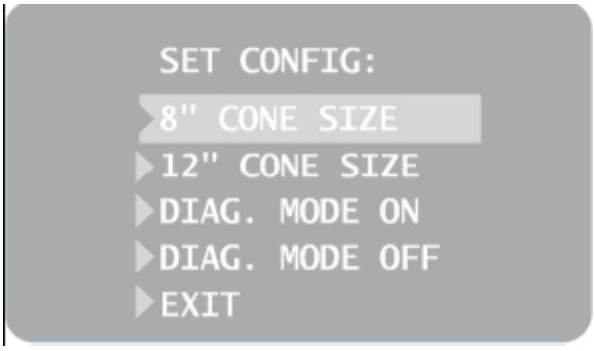
Showing the Maintenance Summary

1. From the Main System Configuration menu, shown in Figure 1, select CONFIGURE UNIT.
2. You will see the Configuration menu, shown in Figure 4.
3. To display a summary of maintenance data, highlight select SHOW MAINT. The following maintenance data are displayed:
    - Total KJ (kilojoules—total system heat on x-ray tube)
    - Exposure Count
    - Reboots (power up cycles)
    - OT Counts (over-threshold counts)
4. Press any button on the Operator Panel to return to the Configuration menu.

If you take an x-ray while in diagnostic mode, the display shows feedback values for that exposure. Until you exit diagnostic mode, the display will continue to show feedback values after each exposure.

1. From the Main System Configuration menu, shown in Figure 1, select CONFIGURE UNIT. You will see the Configuration menu shown in Figure 4.
2. Select SET CONFIG. You will see the Set Configuration menu, shown in Figure 5.
3. From the Set Configuration menu, use the up and down arrows to highlight DIAG MODE ON. Press the right arrow button to turn on diagnostic mode.
4. Exit System Configuration mode by highlighting and selecting EXIT in the Configuration and Main menus.
5. Make an exposure. The display will show the following feedback values:
    - kV
    - mA
    - Filament current
6. Press any button on the Operator Panel to clear the feedback values from the display.
7. To exit diagnostic mode, depress the Tooth Selection and Patient Size Selection buttons simultaneously for 5 seconds to display the Main System Configuration menu. From the Main System Configuration menu, highlight and select CONFIGURE UNIT. Then highlight and select SET CONFIG. On the Set Configuration menu, highlight and select DIAG MODE OFF.

Figure 5
Set Configuration Menu



Trouble Shooting

Performance Issues

Light or dark images	1. Adjust the selected exposure time, kilovoltage or tube current to produce an acceptable image. If necessary, reprogram the techniques factors, as explained in the System Configuration section of this manual. 2. Verify the kilovoltage and tube current during an exposure using the diagnostic mode, as explained in the System Configuration section of this manual. Alternatively, you may employ a non-invasive meter to evaluate kilovoltage and exposure time. 3. Inspect the condition of the remaining imaging chain components such as the film, chemistry and processor, or the condition of the x-ray sensor and computer.
No X-Ray	If no x-ray is produced, check the following: 1. Verify that the line cord (if one is in use) is properly connected. 2. Verify that the power switch is in the ON position.
Pre-termination Error	Early release of the exposure switch will cause a pre-termination error to occur. After five seconds, the system will return to the normal operating condition. Be advised that this will result in an underexposed image.

Technical Support

Contact	PROGENY DENTAL 675 Heathrow Drive Lincolnshire, IL 60069 Phone: +1-847-415-9800 Toll Free: 888-924-3800 Fax: +1-847-415-9810 techsupport@progenydental.com

Recommended Maintenance

Regular Maintenance

In the interest of equipment safety, a regular maintenance program must be established. This maintenance program should consist of cleaning and disinfecting as well as annual system function checking. It is the owner's responsibility to arrange for this service and to assure that the personnel performing this are fully qualified to service Progeny Dental x-ray equipment.

Cleaning and Disinfecting

The VetVision DC Dental X-Ray System requires disinfection. The cleaning and disinfecting methods described here protect operators and patients in a manner that is safe for the equipment.

Cleaning Compounds

Progeny Dental recommends the use of disinfectant products, such as Discide Ultra®, Cavicide® or the equivalent.

Cleaning Methods

Between each patient, perform the following cleaning and disinfecting steps.

1. Remove gross bio-burden from the cone, handles and structure with a disposable towel moistened with water.
2. Dry the cone, handles and structure with disposable towels.
3. Wipe the cone, handles and structure with the disinfectant product following the disinfectant manufacturer's instructions.
4. Clean any remaining disinfectant from the component with water. This additional step prevents possible product discoloration or corrosion.
5. Dry the cone, handles and structure with disposable towels.

Caution!
The Progeny Dental X-Ray System is not waterproof. Use only moistened, not saturated, towels.

Checking System Functions

The following checks must be performed to complete the installation of the VetVision DC Dental X-Ray System and as part of the recommended maintenance as indicated in the User Manual.

CAUTION!

If the VetVision DC Dental X-Ray System does not perform the functions below, advise the owner that the system is not to be used. See the Troubleshooting section of this manual or contact Progeny's Technical Support.

System Function Checklist		✓
Wall Mounting	Ensure that the wall support is adequate and that the system is properly mounted to the wall.	
Labels	Ensure that all certified components bear labels that include the model and serial number, date of manufacture and a statement of certification as noted elsewhere in this manual.	
Tubehead	Check for oil leaks or other evidence that could indicate internal damage. Replace the Tubehead, if necessary.	
Tubehead Rotation	Ensure that the Tubehead maintains its position around the horizontal axis while remaining easy to rotate and position. Also check the vertical pivot of the Tubehead for easy movement while remaining in position after moving.	
Suspension	Check that all movements are smooth and quiet. Verify that the Tubehead is properly counterbalanced for vertical drift and that the Horizontal and Articulating Arms do not drift horizontally.	
Power Switch	Verify that the switch is working properly and that the Ready Indicator is illuminated when the power switch is in the ON position.	
Operator Panel Controls	With the power switch, located at the upper right of the Control Unit, in the ON position, verify that technique factors appear on the Operator Panel. Also, check the function of the selection buttons for Tooth Selection, Image Receptor Type and Patient Size. Pressing a selection	
Exposure Button	Verify that the Exposure button on the Operator Panel is functioning properly. To make an exposure, press and hold the Exposure button until the Radiation Indicator is extinguished and the audible signal is no longer heard.	
Exposure Indicators	Make several exposures and verify that the Radiation Indicator illuminates and the audible signal is heard.	
Premature Termination	Select the longest exposure time possible using the up and down arrows. Initiate an exposure but release the Exposure button after a brief period of time before the timer terminates the exposure. Verify that the display indicates “Pre-termination Error” and returns to normal operating mode.	
Coil-cord Hand Switch	When a coil-cord hand switch is used, inspect the switch housing and coil cord for damage or wear. Replace if evidence of damage is present.	
User Information	Make certain that the user of the system has received the User Manual.	

New Tube Seasoning Procedure

X-ray tubes that sit dormant for several months can become electrically unstable. To remedy this condition, it is recommended you perform a “new tube seasoning procedure.” This process establishes stable high voltage operation and will ultimately extend the life of the tube. Repeat this procedure before returning to normal operation any time the system has been unused for more than two months.

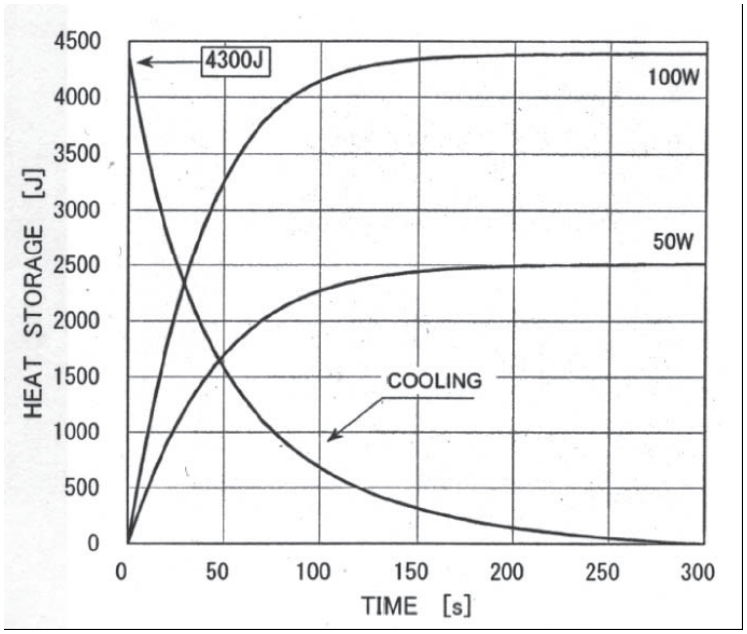
1. Verify system operation.
2. Energize the system.
3. Select 60 kilovolts, 7 milliamperes, and the exposure time of one second.
4. Make five exposures at this level, observing the normal cooling time.
5. Select 65 kilovolts, 7 milliamperes, and the exposure time of one second.
6. Make five exposures at this level, observing the normal cooling time.
7. Select 70 kilovolts, 6 milliamperes, and the exposure time of one second.
8. Make five exposures at this level, observing the normal cooling time.

Specifications

VetVision DC Dental X-Ray System

The following specifications contain information required to be provided to the user per Federal Regulation 21 CFR.

Line Voltage	100-230 VAC +/- 10% 50/60 Hz
Line Load	Max. current 5 amps
Maximum Rated Tube Potential	70 KVp
kVp Accuracy	+/- 5% selectable
Tube Current	4-7 mA +/- 1 mA
Exposure Time	20 ms through 2.00 seconds
Timer Accuracy	5% +/- 1 ms
Source to Skin Distance	8 inch (20 cm)
Minimum Half Value Layer	1.7 mm Aluminum equivalent at 70 kVp
Minimum Inherent Filtration	2 mm Aluminum equivalent at 70 kVp
Focal Spot	0.4 mm (IEC 336)
Automatic Cooling Time	15 times the exposure time wait before the next exposure can begin
Leakage Technique Factors	1.5 mA at 70 kVp
Target Angle	12.5 degrees
Operating Temperature	+50 F/+95 F (+10 C/+35 C)
Storage Temperature	-31F/+150 F (-35 C/+66 C)
Maximum Altitude	12,000 ft
Cone Focal Length	8 inch (20 cm)
Diameter of X-Ray	2.7 inch (6.9 cm) at the end of the Cone Specifications for optional cones differ



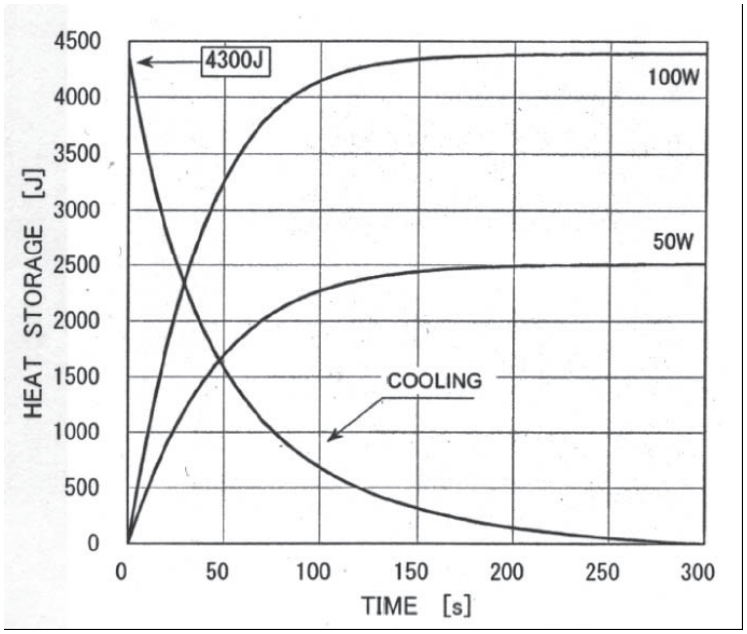
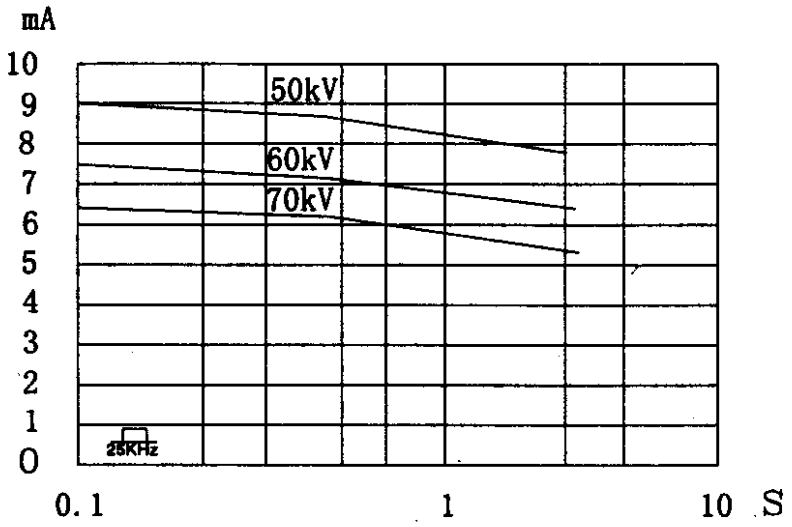
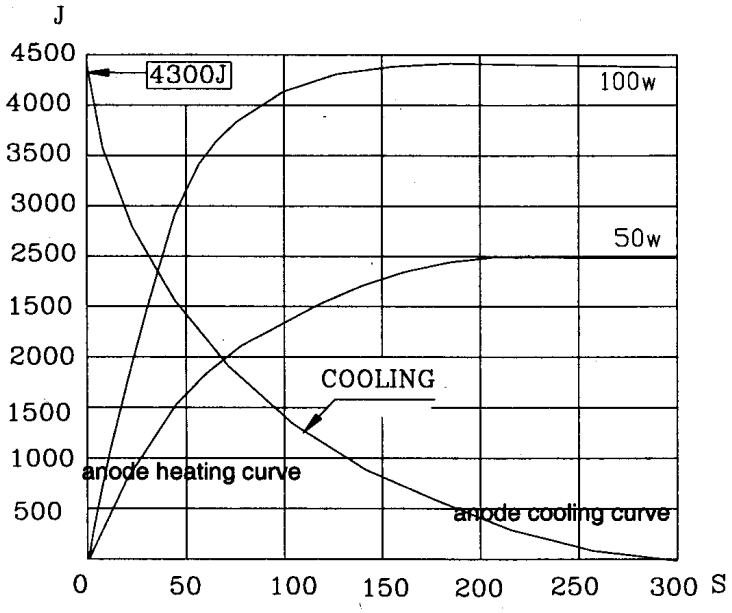


Figure 7
Toshiba Tube Rating Charts



Rating Chart



Thermal Characteristics Chart

Figure 8
Kailong Tube Rating Charts